

WHAT IS CLAIMED IS:

1. A system for utilizing a multi-probe tester to test an electrical device having a plurality of contact pads, comprising:

(a) a multi-probe tester having a plurality of test probes arrayed in a distribution pitch;

(b) an electrical circuit testing apparatus in circuit connection with the multi-probe tester;

(c) a means for masking test probes; and

(d) a module having a top surface comprising a first electrical device, the first electrical device having a first plurality of contact pads arrayed in the distribution pitch on a first device top surface;

wherein the means for masking test probes is configured to mask at least one first test probe when the plurality of test probes is brought into contact with the first device top surface to form a first electrical engagement with the first plurality of contact pads and a circuit test is run by the testing apparatus, thereby preventing the first at least one test probe from returning a test result to the testing apparatus.

2. The system of claim 1 wherein the means for masking test probes is a mask membrane defining a first aperture, the mask membrane disposed between the first device top surface and the plurality of test probes wherein the first at least one test probe is aligned to contact the mask membrane and a first remainder of the test probes is aligned within the first aperture thereby passing through the mask membrane, the mask membrane thereby physically preventing the first at least one test probe from making contact with the module top surface.

3. The system of claim 1 wherein:

(e) the multi-probe tester further comprises a tool application program configured to control the plurality of probes; and

wherein the means for masking test probes is at least one software command loaded into the tool application program, said at least one software command configured to cause an input from the first at least one test probe to be disregarded during a test routine.

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4. The system of claim 3 wherein the means for masking test probes further comprises a mask membrane defining a first aperture, the mask membrane disposed between the first device top surface and the plurality of test probes wherein the first at least one test probe is aligned to contact the mask membrane and a first remainder of the test probes is aligned within the first aperture thereby passing through the mask membrane, the mask membrane thereby physically preventing the first at least one test probe from making contact with the module top surface.

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5. The system of claim 4 wherein:

the first plurality of contact pads is arranged in a first pad array defining a composite two-dimensional first contact pad footprint;

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the plurality of test probes is arranged in a probe array defining a composite two-dimensional probe footprint, the composite probe footprint divergent from the first contact pad array footprint; and

the first at least one test probe is located outside of the composite first pad array footprint when a first remainder of the array of probes is brought into the first electrical engagement with the first array of contact pads.

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6. The system of claim 5 wherein the module further comprises a second electrical device having a second plurality of contact pads on a top surface arrayed in the distribution pitch in a second pad array defining a composite two-dimensional second contact pad footprint divergent from the first contact pad footprint;

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the mask membrane further defining a second aperture, the membrane aligned with the first plurality of contact pads passing through the first aperture and the second plurality of contact pads passing through the second aperture;

wherein the test routine comprises first and second test steps, wherein the multi-probe tester performs the first test step by aligning the plurality of test probes with the first plurality of contact pads with the first at least one probe located outside of the first contact pad footprint and bringing the first at least one probe into contact with the mask membrane and a first remainder of the plurality of test probes passing through the first aperture and into electrical contact with the first array of contact pads in the first electrical engagement; and

the multi-probe tester perform the second test step by subsequently aligning the plurality of test probes with the second plurality of contact pads with a second at least one probe located inside the first pad footprint and outside of the second contact pad footprint and bringing the second at least one probe into contact with the mask membrane and a second remainder of the plurality of test probes passing through the second aperture and into electrical contact with the second array of contact pads in a second electrical engagement.

7. The system of claim 6 wherein the at least one software command causes an input from the first at least one test probe to be disregarded in the first test step and the second at least one probe to be disregarded in the second test step.

8. The system of claim 7 wherein the first and second at least one probes exert a common maximum force on the membrane and the first and second remainder of probes exert the common maximum force upon the contact pads.

9. The system of claim 8 further comprising an alignment frame attached the mask membrane, the frame configured to interact with the module to align the first aperture with the first device and the second aperture with the second device.

10. A method for utilizing a multi-probe tester to test an electrical device having a plurality of contact pads, comprising the steps of:

(a) providing a multi-probe tester having a plurality of test probes arrayed in a distribution pitch;

5 (b) providing an electrical circuit testing apparatus in circuit connection with the multi-probe tester;

(c) providing a means for masking test probes; and

(d) providing a module having a top surface comprising a first electrical device, the first electrical device having a first plurality of contact pads arrayed in the distribution pitch on a first device top surface;

10 (e) aligning the test probe array pitch with the first contact pad array pitch;

(f) bringing at least some of the plurality of test probes into electrical contact with the first plurality of contact pads to form a first electrical engagement;

(g) the means for masking test probes masking at least one first test probe; and

15 (h) the testing apparatus running a circuit test with the probes, wherein the first at least one test probe is prevented from returning a test result to the testing apparatus.

20 11. The method of claim 10 wherein the means for masking test probes is a mask membrane defining a first aperture, the method further comprising the steps of:

(i) aligning the first aperture with the first plurality of contact pads;

(j) disposing the mask membrane between the first device top surface and the plurality of test probes;

25 (k) bringing the first at least one test probe into contact with the mask membrane thereby physically preventing the first at least one test probe from making contact with the module top surface.

12. The method of claim 10 wherein the means for masking test probes is at least one software command loaded into the tool application program, further comprising the steps of:

(l) providing a tool application program for the multi-probe tester configured to control the plurality of probes; and

(m) the program running the at least one software command;

(n) the multi-probe tester disregarding an input from the first at least one test probe responsive to the software command during the test routine.

13. The method of claim 12 wherein the means for masking test probes further comprises a mask membrane defining a first aperture; further comprising the steps of:

(o) aligning the first aperture with the first plurality of contact pads;

(p) disposing the mask membrane between the first device top surface and the plurality of test probes;

(q) bringing the first at least one test probe into contact with the mask membrane thereby physically preventing the first at least one test probe from making contact with the module top surface.

14. The method of claim 13 further comprising the steps of:

(r) arranging the first plurality of contact pads in a first pad array defining a composite two-dimensional first contact pad footprint;

(s) arranging the plurality of test probes in a probe array defining a composite two-dimensional probe footprint, the composite probe footprint divergent from the first contact pad array footprint; and

wherein the first at least one test probe is located outside of the composite first pad array footprint when a first remainder of the array of probes is brought into the first electrical engagement with the first array of contact pads in the first electrical engagement of step (f).

15. The method of claim 14 wherein the module further comprises a second electrical device having a second plurality of contact pads on a top surface arrayed in the distribution pitch in a second pad array defining a composite two-dimensional second contact pad footprint divergent from the first contact pad footprint;

5 the mask membrane further defining a second aperture;
 the step (i) aligning the first aperture with the first plurality of contact pads further comprises aligning the second plurality of contact pads with the second aperture;
 wherein the test routine comprises first and second test steps;
 the multi-probe tester performing the first test step by aligning the plurality of test
10 probes with the first plurality of contact pads with the first at least one probe located outside of the first contact pad footprint and bringing the first at least one probe into contact with the mask membrane and a first remainder of the plurality of test probes passing through the first aperture and into electrical contact with the first array of contact pads in the first electrical engagement; and
15 the multi-probe tester performing the second test step by subsequently aligning the plurality of test probes with the second plurality of contact pads with a second at least one probe located inside the first contact pad footprint and outside of the second contact pad footprint and bringing the second at least one probe into contact with the mask
20 membrane and a second remainder of the plurality of test probes passing through the second aperture and into electrical contact with the second array of contact pads in a second electrical engagement.

16. The method of claim 15 wherein the at least one software command causes an input from the first at least one test probe to be disregarded in the first test step
25 and the second at least one probe to be disregarded in the second test step.

17. The method of claim 16 wherein the first and second at least one probes exert a common maximum force on the membrane and the first and second remainder of probes exert the common maximum force upon the contact pads.

18. The method of claim 17 further comprising:
providing an alignment frame attached the mask membrane;
the frame interacting with the module to align the first aperture with the first
5 device and the second aperture with the second device.

19. An article of manufacture comprising a computer usable medium having a
computer readable program embodied in said medium, wherein the computer readable
program, when executed on a computer configured to control a plurality of test probes,
10 causes the computer to select and disregard at least one test probe input from a test
routine executed on the probes.

20. The article of manufacture of claim 20 wherein the test routine comprises
first and second test steps, wherein the computer readable program, when executed on the
15 computer configured to control a plurality of test probes, causes the computer to select
and disregard at least one first test probe input from the first step; and

further causes the computer to select and disregard a second at least one probe in
the second test step.